

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-21. (canceled)

22. (original) A tissue forming structure comprising:
a permeable, biocompatible support structure having a predetermined shape that corresponds to the shape of desired tissue; and
a hydrogel-cell composition at least partially filling the support structure, wherein the hydrogel-cell composition comprises a hydrogel and tissue precursor cells.

23. (original) The tissue forming structure of claim 22, wherein the hydrogel-cell composition is a solidified suspension of hydrogel supporting dispersed tissue precursor cells.

24. (original) The tissue forming structure of claim 22, wherein the support structure comprises a ceramic material.

25. (original) The tissue forming structure of claim 22, wherein the support structure is biodegradable.

26. (original) The tissue forming structure of claim 22, wherein the support structure comprises a sponge or foam.

27. (original) The tissue forming structure of claim 22, wherein the support structure is compressible.

28. (original) The tissue forming structure of claim 22, wherein the support structure comprises a mesh of polymeric fibers.

29. (original) The tissue forming structure of claim 22, wherein the support structure comprises a mesh of polyglycolic acid fibers and polylactic acid.

30. (original) The tissue forming structure of claim 22, wherein the support structure is formed from polyanhydride, polyorthoester, polyglycolic acid, polylactic acid, or polyglactin.

31. (original) The tissue forming structure of claim 22, wherein the support structure comprises porous hydroxyapatite.

32. (original) The tissue forming structure of claim 22, wherein the support structure comprises metal.

33. (original) The tissue forming structure of claim 22, wherein the support structure is rigid.

34. (original) The tissue forming structure of claim 22, wherein the hydrogel is selected from the group consisting of polysaccharides, proteins, polyphosphazenes, poly(oxyethylene)-poly(oxypropylene) block polymers, poly(oxyethylene)-poly(oxypropylene) block polymers of ethylene diamine, poly(acrylic acids), poly(methacrylic acids), copolymers of acrylic acid and methacrylic acid, poly(vinyl acetate), and sulfonated polymers.

35. (original) The tissue forming structure of claim 22, wherein the tissue precursor cells are selected from the group consisting of epidermal cells, chondrocytes and other cells that form cartilage, macrophages, dermal cells, muscle cells, hair follicles, fibroblasts, organ cells, osteoblasts and other cells that form bone, endothelial cells, mucosal cells, pleural cells, ear canal cells, tympanic membrane cells, peritoneal cells, Schwann cells, corneal epithelial cells, gingiva cells, neural cells, neural stem cells, and tracheal epithelial cells.

36. (original) The tissue forming structure of claim 22, wherein the tissue precursor cells are selected from the group consisting of central nervous system neural stem cells, autonomic nervous system neural stem cells, or peripheral nervous system neural stem cells.

37. (original) The tissue forming structure of claim 22, wherein the tissue precursor cells are selected from the group consisting of brain stem cells and spinal cord stem cells.

38. (original) The tissue forming structure of claim 22, wherein the tissue precursor cells are neuroendocrine stem cells.

39. (original) The tissue forming structure of claim 22, wherein the tissue precursor cells are selected from the group consisting of bladder, small intestine, lung, heart, kidney, and liver autonomic neural stem cells.

40. (original) A tissue forming structure of claim 22, wherein the cells are bone forming cells and the support structure comprises porous hydroxyapatite.

41. (original) An isolated, mammalian adult autonomic nervous system neural stem cell.

42. (original) The isolated stem cell of claim 41; wherein the cell is isolated from heart, bladder, intestine, lung, liver, or kidney tissue.

43. (original) An isolated, mammalian adult neuroendocrine stem cell.

44. (original) A stem cell of claim 43, wherein the cell is isolated from adrenal gland or pancreas tissue.

Claims 45 – 53. (canceled)